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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,477	10/27/2003	Shunpei Yamazaki	0553-0118.01	4264
<div>7590      02/01/2007 Edward D. Manzo Cook, Alex, McFarron, Manzo, Cummings &amp; Mehler, Ltd. 200 West Adams St., Ste. 2850 Chicago, IL 60606</div>			<div>EXAMINER PRENTY, MARK V</div>	
			ART UNIT	PAPER NUMBER
			2822	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/01/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/694,477

Applicant(s)

YAMAZAKI, SHUNPEI

Examiner

MARK PRENTY

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 24, 25, 28-30, 33-35, 38, 39, 41, 43, 44, 46, 48, 49, 51, 53-65 and 69-87 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24, 25, 28-30, 33-35, 38, 39, 41, 43, 44, 46, 48, 49, 51, 53-59, 63-65, 69-71, 75-77 and 81-87 is/are allowed.
- 6) ☒ Claim(s) 60-62, 72-74 and 78-80 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date January 16, 2007.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

This Office Action is in response to the RCE filed on January 16, 2007.

Claims 60, 72 and 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,455,791 to Zaleski et al. (Zaleski) together with United States Patent 3,890,632 to Ham et al. (Ham).

As to independent claim 60, Zaleski discloses a semiconductor device (see the entire patent, including the Fig. 1 disclosure) comprising: a semiconductor film 2b including a source region 4b, a channel forming region 4c, and a drain region 4a; a floating gate 6 formed over the channel forming region with a gate insulating film 5 interposed therebetween; and a control gate 8 formed over the floating gate.

The difference between claim 60 and Zaleski is claim 60 further comprises: "a pair of impurity regions formed at side edges along the channel length direction respectively; a second impurity region formed between the pair of the impurity regions."

Ham teaches providing a thin film transistor with a pair of impurity regions formed at side edges along the channel length direction respectively and a second impurity region formed between the pair of impurity regions in order to stabilize the transistor's leakage current and threshold voltage (see the entire patent, including the pair of impurity regions 33 and 35 formed at side edges along the channel length direction respectively and second impurity regions 32 and 34 formed between the pair of impurity regions 33 and 35).

It would have been obvious to one skilled in this art to provide Zaleski's thin film transistor with a pair of impurity regions formed at side edges along the channel length direction respectively and a second impurity region formed between the pair of impurity

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regions in order to stabilize the transistor's leakage current and threshold voltage as taught by Ham.

Claim 60 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Zaleski together with Ham.

With respect to dependent claim 72, Ham's pair of impurity regions is opposite conductivity type of the source and drain regions (see column 4, lines 46-50, for example).

Claim 72 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Zaleski together with Ham.

With respect to dependent claim 78, Zaleski's SOI semiconductor film 2b is a single crystal silicon film or a polysilicon film (see Yamazaki at column 7, lines 6-13).

Claim 78 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Zaleski together with Ham.

Claims 61, 62, 73, 74, 79 and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,455,791 to Zaleski et al. (Zaleski) together with United States Patent 3,890,632 to Ham et al. (Ham) and United States Patent 5,814,854 to Liu et al (Liu).

Independent claim 61 parallels independent claim 60 except that claim 61's semiconductor device is a NOR circuit memory transistor. The explanation of the above rejection of claim 60 under 35 U.S.C. 103(a) as being unpatentable over Zaleski together with Ham is thus hereby incorporated by reference into this rejection of claim

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61 under 35 U.S.C. 103(a) as being unpatentable over Zaleski together with Ham and Liu.

The difference, therefore, between independent claim 61 and the obvious Zaleski/Ham device is claim 61's semiconductor device is a NOR circuit memory transistor.

Liu, however, teaches that EEPROM devices are conventionally used to form NOR type circuits (see column 4, lines 1-16).

It would have been further obvious to one skilled in the art use the obvious Zaleski/Ham EEPROM device in a NOR type circuit because Liu teaches that EEPROM devices are conventionally used to form a NOR type circuit.

Claim 61 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Zaleski together with Ham and Liu.

Independent claim 61's dependent claims 73 and 79 parallel independent claim 60's dependent claims 72 and 78 (addressed above) and are thus also rejected under 35 U.S.C. 103(a) as being unpatentable over Zaleski together with Ham and Liu.

Independent claim 62 parallels independent claim 60 except that claim 62's semiconductor device is a NAND circuit memory transistor. The explanation of the above rejection of claim 60 under 35 U.S.C. 103(a) as being unpatentable over Zaleski together with Ham is thus hereby incorporated by reference into this rejection of claim 62 under 35 U.S.C. 103(a) as being unpatentable over Zaleski together with Ham and Liu.

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The difference, therefore, between independent claim 62 and the obvious Zaleski/Ham device is claim 62's semiconductor device is a NAND circuit memory transistor.

Liu, however, teaches that EEPROM devices are conventionally used to form NAND type circuits (see column 4, lines 1-16).

It would have been further obvious to one skilled in the art use the obvious Zaleski/Ham EEPROM device in a NAND type circuit because Liu teaches that EEPROM devices are conventionally used to form a NAND type circuit.

Claim 62 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Zaleski together with Ham and Liu.

Independent claim 62's dependent claims 74 and 80 parallel independent claim 60's dependent claims 72 and 78 (addressed above) and are thus also rejected under 35 U.S.C. 103(a) as being unpatentable over Zaleski together with Ham and Liu.

Claims 24, 25, 28-30, 33-35, 38, 39, 41, 43, 44, 46, 48, 49, 51, 53-59, 63-65, 69-71, 75-77 and 81-87 are allowable over the prior art of record.

The applicant's remark: "Applicant is amending independent Claims 60-62 to recite the feature of 'a second impurity region formed between the pair of the impurity regions.' It is respectfully submitted that neither Zaleski nor Ham disclose or suggest this feature," is incorrect. Specifically, the examiner respectfully submits that Ham teaches the "a second impurity region formed between the pair of the impurity regions" feature, as explained above in the amended rejection of independent claim 60 under 35 U.S.C. 103(a) as being unpatentable over Zaleski together with Ham.

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Registered practitioners can telephone the examiner at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (571) 272-2800.

  
Mark V. Prenty  
Primary Examiner